



# United States Patent Office.

JAMES B. SKINNER, OF ROCKFORD, ILLINOIS.

Letters Patent No. 100,812, dated March 15, 1870.

## IMPROVEMENT IN CULTIVATORS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JAMES B. SKINNER, of Rockford, in the county of Winnebago, and State of Illinois, have invented certain new and useful Improvements in Cultivators, of which the following is a full, clear, and exact description.

It is the object of my invention to so construct a cultivator that the framing or beams carrying the shovels may readily be reciprocated laterally while the machine is in operation, without changing the direction of the movement of the machine or team, to adapt the machine to the cultivation of irregular or crooked rows of corn, &c.; to so connect the shovel-standards with their beams that when a rigid or unyielding obstacle is encountered by a shovel, it will swing back to avoid breaking its standard, or otherwise injuring the machine; and to render easy the control of the vertical movements of the shovels by the operator; and the improvements herein claimed consist—

First, in a cultivator having a frame carrying the shovels suspended from the machine, and moving (when desired) bodily sidewise in a direction at a right angle to the path of the machine upon rollers, substantially as hereinafter set forth.

Second, in a guide-bracket, secured upon the tongue, and in which a roller upon the front of the shovel-beams or frame reciprocates, substantially as hereinafter set forth.

Third, in the combination of shovel-beams rigidly united with each other to form a frame for the attachment of the shovel-standards, a guiding-bracket, in which a roller upon the front of the shovel-frame reciprocates, and guide-ways over the axle of the machine, upon which reciprocate rollers attached to levers, serving as supports, from which the shovel-frame is suspended, substantially as hereinafter set forth.

In the accompanying drawings—

Figure 1 represents a plan or top view of my improved cultivator; and

Figure 2, a vertical longitudinal section through the same at the dotted lines *x x* of fig. 1.

A A represent the wheels of the machine mounted, in this instance, upon short crank axles *a*, which are bolted to the under side of an axle-tree, B, to which two longitudinal pieces C C are securely fastened, and extend forward, gradually nearing each other, to form the tongue of the machine, as shown in my patent of January 23, 1866.

To these tongue-pieces is bolted a cross-piece, D, having loops, *d*, at its ends, in which the upper ends of bars *e* (having vertically-adjustable hooks for the attachment of the team) rest.

An evener-bar or double-tree, E, is secured by a bolt, *f*, to the cross-piece D, as shown in my patent above mentioned.

In this instance, the bolt *f* passes through the end of a standard, F, (projecting back of and secured upon the axle,) supporting a seat, G, for the driver, located behind the axle, and adjustable backward and forward to balance the machine properly.

Two beams, H H, diverging from front to rear, are united by a brace-plate, *h*, embracing the ends of the beams, and securely fastened thereto.

A bent brace-rod, I, in rear of the axle, rests at each end in a recessed or concave plate, *i i*, in which position it is securely held by eye-bolts J J, through the eyes, on the upper ends of which the ends of the rod are passed, and the lower ends of said bolts pass through cross-plates *j j*, beneath the beams, and receive nuts by which to draw down the plates *i* and the rod I tightly upon the beams at the desired point.

Standards K for the shovels (which are attached to the standards in any well-known way) are secured in sockets *k*, provided with shanks or bolts, which pass through the beams H, and are held in place by nuts on the ends of the bolts, so as to allow them to turn.

The sockets have recesses *k'*, formed on their insides.

A wedge, *k''*, having an enlargement on one side of each end, is placed upon each standard, (when it is to be inserted into its socket,) the smooth side of the wedge being next the standard. The small ends of the standards are inserted tightly in the sockets, and the wedges are forced down in the recesses, and should the wedges work loose, the projections on their ends will prevent them from being lost.

The wedges, it will be seen, if kept tight, will prevent any slipping of the standards in their sockets.

Upon the back of each standard K, near the shovels, is secured a metal plate, *l*, having two lugs close together about its center.

A loop or ring, L, is placed between these lugs on each plate, and slipped down with the plates upon the standards, and secured in place by the same screws or bolts which hold the plates, as the ring cannot leave the lugs.

An inclined drag-bar, M, for each standard K, is secured at its upper end to the beams H, and at their lower ends these bars are connected with the perforated ends of the loops L by wooden pins *m*, passing through eyes in the drag-bars.

When a shovel or tooth meets with an immovable obstacle, the pin *m* breaks, and the socket *k* turns upon its shank in the frame to allow the standard and tooth to swing back to avoid breaking any part of the machine. The loop is retained in place upon the standard by the lugs upon the plate *l*. The plate also prevents any injury to the standard by the rubbing of the loop upon it.

Lever N N have each secured to their front ends one end of a chain, *n*. Each chain passes first around

a pulley, *o*, upon each beam *H*, in front of the axle; thence beneath the axle, and around a second pulley, *o'*, upon the beams a little in rear of the axle, from whence the chains pass upward, and are fastened to the levers about over the axle.

To the under side of each of the levers, over the axle, is secured, in suitable bearings, a grooved roller, *O*, resting upon rails or guide-ways *p p*, on the axle, which serves as the fulcrum of the levers.

Upon each beam *H*, in rear of the axle, is firmly secured a curved rack-bar, *Q*, projecting through slots in the levers which are provided with suitable detents *q*.

Upon the under side of the tongue-pieces or frame *C C* is secured a bracket, *P*, slotted to receive and guide a grooved roller, *R*, secured to the bracing-plate *h*, upon the front of the shovel-frame *H H*.

Shoes or foot-rests *T T*, for the driver, are mounted upon supports *S*, provided with a series of holes, and supported and held in guide-bearings *s*, upon the beams *H*. The shoes are held at any desired elevation by pins passing through the holes in the supports above the beams.

When the machine is in operation, and the driver wishes to move the shovels sidewise, to avoid injury to straggling plants, he bears with his foot upon the rest upon that side to which he wishes the shovels to move, (this movement being aided by pressing with the hand upon one of the levers, when desired.) This pressure causes the entire shovel-frame to move sidewise, the frame being guided by the roller *R*, moving in the open or slotted bracket *P*, upon the under side of the tongue, and by the rollers *O*, beneath the levers *N*, moving on the rails *p*. A pressure of the foot upon

the opposite rest *T*, returns the shovels and the frame *H H* to their original position.

The work of elevating the beams is rendered quite easy by my arrangement of pulleys and chains, the beams being lifted in rear of the axle by chains attached to the levers in front; and it is obvious that if the chains and pulleys were dispensed with the labor of adjusting the beams would be much greater.

I am aware that cultivator-frames suspended beneath an axle, and oscillating on a pivot, are not new, and do not, therefore, broadly claim such devices; but I am not aware of the existence of devices constructed, combined, and operating as in my machine, and as hereinafter claimed.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the main frame, the laterally-reciprocating shovel-frame, always moving parallel to itself, the traversing roller beneath the tongue, and the supporting-rollers upon the axle, all these parts being constructed to operate as set forth.

2. The combination of the tongue, the guide-bracket, and the traversing-roller on the shovel-frame, all these parts being constructed to operate as set forth.

3. The combination of the shovel-frame, the guide-bracket, the guide-rails on the axle, the supporting-rollers, and the lifting-levers, all these parts being constructed to operate as set forth.

In testimony whereof I have hereunto subscribed my name.

JAMES B. SKINNER.

Witnesses:

H. M. SKINNER,  
C. C. BRIGGS.